

providing a stiffness measuring device, said stiffness measuring device having a detecting unit, and a calculation means, wherein said detecting unit includes:

a contact unit,

a vibrator connected to said contact unit, and

a vibration detecting unit for detecting the vibration of said vibrator, and

said calculation means determines stiffness information by calculation based on a detected result from said vibration detecting unit;

bringing said contact unit into contact with the cultured tissue, and

measuring the stiffness of the cultured tissue.

2. (Amended) A method according to claim 1, further comprising:

detecting with a load detecting unit a load applied onto said contact unit, and

measuring the stiffness of the cultured tissue based on a relationship between the vibration of the vibrator detected by said vibration detecting unit and the load detected by said load detecting unit.

3. (Amended) A method according to claim 1, further comprising:

detecting with a displacement detecting unit a displacement of the contact unit from a reference position, and

measuring the stiffness of the cultured tissue based on a relationship between the vibration of the vibrator detected by said vibration detecting unit and the displacement detected by said displacement detecting unit.

4. (Amended) A method according to claim 1, wherein said cultured tissue includes at least one of a cell or a matrix produced by said cell, said cell being seeded and cultured on a tissue regeneration scaffold having a three-dimensional structure, comprising:

defining the stiffness of the tissue regeneration scaffold alone on which no cell is seeded or the stiffness of a cultured tissue immediately after the seeding of said cell is previously measured and the resulting stiffness information as reference stiffness information, and

comparing said reference stiffness information with the stiffness information of the cultured tissue.

B2 7. (Amended) A method of determining the transplant compatibility of a tissue cultured in vitro, said method using a method for measuring the stiffness of a cultured tissue according to any one of claims 1 to 6 and 12-14.

8. (Amended) A method for quality control of a cultured tissue, said method comprising the steps of:

measuring a stiffness of an in vitro cultured tissue at a predetermined time after an initiation of culture;

predicting a change in stiffness of said cultured tissue with time; and

controlling culture conditions for said cultured tissue based on the resulting prediction.

9. (Amended) A method according to claim 8, further comprising:

B3 measuring the stiffness of said cultured tissue using a stiffness measuring device, said stiffness measuring device comprising a detecting unit and calculation means, said detecting unit including a contact unit, a vibrator connected to said contact unit, and a vibration detecting unit for detecting a vibration of said vibrator, and said calculation means determining stiffness information by calculation based on a detected result from said vibration detecting unit.

10. (Amended) A method of preparing a transplant-compatible cultured tissue, said method comprising the step of:

measuring a stiffness of an in vitro cultured tissue at a predetermined time after an initiation of cultivation in order to determine a transplant compatibility of the cultured tissue.

11. (Amended) A method according to claim 10, further comprising:

predicting a change in stiffness of said cultured tissue with time based on the measurement of stiffness of said cultured tissue, and

controlling the culture conditions of said cultured tissue to thereby prepare the transplant-compatible cultured tissue.

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**Please add the following new claims:**

B4 12. (New) A method according to claim 1, wherein the contact area of the contact unit is in a range of from equal to approximately one fifth a projected area of the cultured tissues for obtaining the stiffness information corresponding to an entire cultured tissue.

13. (New) A method according to claim 1, wherein the contact area of the contact unit is one fifth or less of a projected area of the cultured tissues for obtaining the stiffness information corresponding to a local cultured tissue.

14. (New) A method according to claim 1, wherein the contact area of the contact unit is one fifth or less of a projected area of the cultured tissues, and the number of measuring points per cultured tissue are 5 to 50.

15. (New) A method according to claim 9, wherein the contact area of the contact unit is one fifth or less of a projected area of the cultured tissues, and the number of measuring points per cultured tissue are 5 to 50, and the culture condition is controlled based on an average of plural measurements.

16. (New) A method according to claim 1, wherein the contact area of the contact unit is in a range of from equal to about one fifth a projected area of the cultured tissues, and the number of measuring points per cultured tissue is 5 to 50.

17. (New) A method according to claim 9, wherein the contact area of the contact unit is in a range of from equal to about one fifth a projected area of the cultured tissues, the number of measuring points per cultured tissue is 5 to 50, and the culture condition is controlled based on an average of plural measurements.

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